

REMARKS

Claims 1-13, 14, and 17 are amended and claims 28-34 are added herein. Claims 1-34 will be pending in this application upon entry of these amendments. Applicants acknowledge the allowance of claims 19-27 and the allowability of claims 6-11, 17, and 18.

The following remarks are responsive to the Office action dated June 29, 2005.

General Considerations

Stoppings are widely used in mines to block off the flow of air through some mine passageways. It is often desired that such stoppings be provided with a door for occasional access to the blocked-off passageway. A problem is encountered, however, in providing a door for a stopping because the floors of mine passageways often heave up or otherwise shift (often referred to as a "convergence"), which may result in movement of the stopping and/or door frame. Such convergence may cause the door latch to become jammed or become unlatched, which allows the door to open causing the undesired flow of air through the doorway. In one aspect, applicants' claimed invention is directed generally to an improved latch mechanism for holding a door in a mine stopping tightly closed during a mine convergence, but also requiring less effort to open the door. Accordingly, applicants' invention is a significant improvement over the prior art.

Response to Claim Rejections

CLAIM 1

Amended claim 1 is directed to a combination of a mine stopping and a door system for closing a doorway in the mine stopping. The door system comprises:

a door hinged adjacent the doorway for swinging relative to the stopping between a closed position and an open position swung outwardly away from the stopping;

a keeper mounted in fixed position relative to the doorway;
and

a trigger-actuated latch mechanism including a detent engageable with the keeper for latching the door in its closed position and a trigger operably connected to the detent in a latched position, the detent in the latched position being biased toward an unlatched position, the mechanism being constructed and configured so that actuation of the trigger causes the detent to move from the latched position in which the detent engages the keeper for latching the door closed to the unlatched position in which the detent is disengaged from the keeper for allowing the door to be opened.

CLAVIN

Amended claim 1 is unanticipated by and patentable over the references of record including U.S. Patent No. 5,638,709 (Clavin) since Clavin fails to show or suggest **a mine stopping**. Claims 2-13 depend from claim 1 and are submitted as patentable for at least the same reasons as claim 1.

KENNEDY '986

Claim 1 has been amended herein to include features similar to those recited in claim 3, which was found allowable over Kennedy '986. The features added to claim 1 differ from the features of claim 3 in that claim 3 recites the detent is spring-

biased. However, this difference is not relevant to the patentability of amended claim 1 over Kennedy '986 since Kennedy '986 teaches biasing a detent in a latched position towards the latched position. See column 3, lines 54-59. Accordingly, Kennedy '986 fails to teach or suggest biasing the detent in the latched position toward the unlatched position.

As a result, amended claim 1 is unanticipated by and patentable over Kennedy '986. Claims 2-13 depend from claim 1 and are patentable over Kennedy '986 for at least the same reasons as claim 1.

CLAIM 14

Claim 14 is directed to a combination of a mine stopping and a door system for closing a doorway in the mine stopping. The door system comprises:

- a door hinged adjacent the doorway for swinging relative to the stopping between a closed position and an open position swung outwardly away from the stopping;

- a keeper mounted in fixed position relative to the doorway;
- and

- a latch mechanism including a detent engageable with the keeper for latching the door in its closed position when the detent is in a latched, cocked position, a biasing member for biasing the detent to an unlatched, uncocked position, a sear for holding the detent in the cocked position, and a trigger operably connected to the sear for moving the sear away from the detent to thereby cause the detent to move from the latched, cocked position to the unlatched, uncocked position, the mechanism being constructed and configured so that upon actuation of the trigger, the detent remains in the unlatched, uncocked position at least until the door is opened.

To the extent claim 14 recites the same features as claim 1, claim 14 is patentable over Clavin for at least the same reasons as set forth above with respect to claim 1.

CLAIM 16

Claim 16 depends indirectly from claim 14 and recites that closing the door after the door has been pulled open re-cocks the mechanism so that the detent is re-cocked and prepared for actuation.

In Clavin, closing the door does not re-cock the latch. Clavin's latch is re-cocked by pushing downward on the handle so that engages the trigger. See column 3, lines 31-37. As a result, claim 16 is further unanticipated by and patentable over Clavin for this additional reason.

New Claims 28-32

New claims 28-34 are submitted to be patentable over the references of record including Clavin and Kennedy '986 in that the claimed combination of elements is not shown or suggested by the prior art. With respect to new claim 28, Clavin fails to disclose or suggest a mine stopping, and Kennedy '986 fails to disclose or suggest the detent in the latched position being biased toward an unlatched position. Claim 29 depends from claim 28 and is patentable over the prior art for the same reasons. New claim 30 recites that at least two triggers are operably connected to the detent and the detent in the latched position is biased toward an unlatched position. The combination of these features of new claim 30 are not shown or suggested in either Clavin or Kennedy '986. New claim 31 depends from claim 30 and is patentable for at least the same reasons as claim 30. New claim 32 also recites a combination of features not shown or suggested in Clavin and Kennedy '986. Specifically, claim 32 recites that the detent is engageable with the keeper for

latching the door in its closed position even during movement of the keeper relative to the door (e.g., during a mine convergence). Clavin does not disclose or suggest such a feature. New claim 33, which depends from claim 32, is patentable for the same reasons as claim 32. New claim 34 recites that the door system includes at least one handle mounted on the door and that the handle is mounted on the door independent of the trigger. Neither Clavin nor Kennedy '986 disclose or suggest this feature of new claim 32.

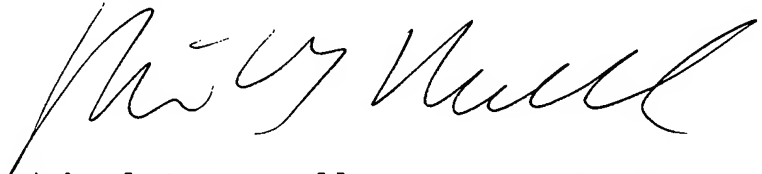
Accordingly, new claims 28-34 are unanticipated by and patentable over the prior art of record including Clavin and Kennedy '986.

CONCLUSION

In view of the foregoing, allowance of the application is respectfully required. The undersigned requests a telephone call from the Examiner if this would expedite allowance of the application.

A check in the amount of \$575.00 is enclosed for payment of the extra claims fee. The Commissioner is hereby authorized to charge any underpayment or credit any overpayment to Deposit Account No. 19-1345.

Respectfully submitted,



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